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Gangliostilbe wuzhishanensis sp. nov. from Hainan, China

Rong-Yu Liu, Zhao-Xue Zhang, Tai-Chang Mu, Shu-Bin Liu, Xiu-Guo Zhang, Ji-Wen Xia*

Shandong Provincial Key Laboratory for Biology of Vegetable Diseases and Insect Pests, College of Plant Protection, Shandong Agricultural University, Taian, Shandong 271018, China

* Correspondence to: *xiajiwen1@126.com; xiajiwen163@163.com*

Abstract—*Gangliostilbe wuzhishanensis* is described and illustrated as a new species from dead branches of an unidentified broadleaf tree in Hainan Province, China. The fungus is characterized by synnematous conidiophores with monoblastic conidiogenous cells producing 3–6-euseptate, 22–30 × 5–7 µm, clavate conidia. A key to *Gangliostilbe* species is provided.

Key words—anamorphic fungi, conidial fungi, hyphomycetes, taxonomy

Introduction

Gangliostilbe was erected by Subramanian & Vittal (Vittal 1976) with *G. indica* Subram. & Vittal as the type species. It is characterized by synnematous and unbranched conidiophores with integrated, determinate, monoblastic conidiogenous cells that produce solitary, obovoid, ovoid or fusiform, euseptate conidia. Four further species have been added to the genus: *G. costaricensis* Mercado & al., *G. malabarica* Subram. & Bhat, *G. verrucosa* Bhat & B. Sutton, and *G. yunnanensis* L.G. Ma & X.G. Zhang (Bhat & Sutton 1985, Subramanian & Bhat 1989, Mercado-Sierra & al. 1997, Ma & al. 2014).

Hainan Province (18.17°–20.17°N 108.62°–111.08°E) is an island in southern China. The annual mean temperature is 22–27 °C, and the

annual precipitation 100–260 cm. Wuzhishan National Nature Reserve, in central Hainan, has a typical tropical rainforest climate. Among our fungal collections from this region, we found a hyphomycetous fungus that conformed with *Gangliostilbe* Subram. & Vittal and is described and illustrated here as a new species, *G. wuzhishanensis*.

Materials & methods

Samples of dead branches were collected from Wuzhishan National Nature Reserve of Hainan Province, China, and taken to the laboratory in zip-lock plastic bags. Samples were processed and examined following the methods described in Ma & al. (2011). Micromorphological characters were observed using an Olympus SZX10 stereomicroscope and Olympus BX53 microscope, both fitted with Olympus DP80 high definition colour digital cameras to photo-document fungal structures. Conidia were measured at their widest point. The range between minimum and maximum values for microscopic measurements is given. Adobe Photoshop CS5 was used for image processing to assemble photographs into plates. Single spore isolations did not grow on PDA at 25 °C after several attempts and therefore only morphological data are used here. The studied specimens are deposited in the Herbarium of Plant Pathology, Shandong Agricultural University, Taian, China (HSAUP).

Taxonomy

Gangliostilbe wuzhishanensis J.W. Xia, R.Y. Liu & X.G. Zhang, **sp. nov.** Fig. 1

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Differs from other *Gangliostilbe* species by its clavate conidia.

Type: China, Hainan Province, Wuzhishan National Nature Reserve, on dead stems of an unidentified broadleaf tree, 20 May 2021, R.Y. Liu (**Holotype**, HSAUP WZ2401).

Etymology: in reference to the type locality.

Colonies on natural substrate effuse, dark brown. Mycelium mostly immersed, partly superficial, composed of branched, septate, pale brown, smooth hyphae, 1–2.5 µm diam. Synnemata unbranched, erect, with dark brown stalks, consisting of parallel conidiophores, terminating in brown fertile heads, 200–270 µm long, 20–30 µm diam. at the middle, 30–50 µm diam. at the base. Conidiophores macronematous, synnematous, erect, unbranched, cylindrical, brown, thick-walled, multiseptate, smooth, divergent towards the distal part of the synnema, 1.5–2.5 µm diam. Conidiogenous cells monoblastic, integrated, terminal, determinate or percurrently extending, cylindrical, smooth, brown, thick-walled. Conidia solitary, acrogenous, clavate, brown, basal cells pale brown, smooth, thick-walled, 3–6-euseptate, 22–30 × 5–7 µm, 2–3 µm diam. at the truncate base.

Fig. 1. *Gangliostilbe wuzhishanensis* (holotype, HSAUP WZ2401).
A, C. Conidia; B. Synnematous conidiophores with monoblastic conidia. Scale bars = 20 µm.

Comments – Conidial characters have been used to distinguish species within *Gangliostilbe*. *Gangliostilbe wuzhishanensis* is clearly distinguished from the other *Gangliostilbe* species by their different conidia: *G. indica* and *G. yunnanensis* produce obovoid to ellipsoidal conidia (Vittal 1976,

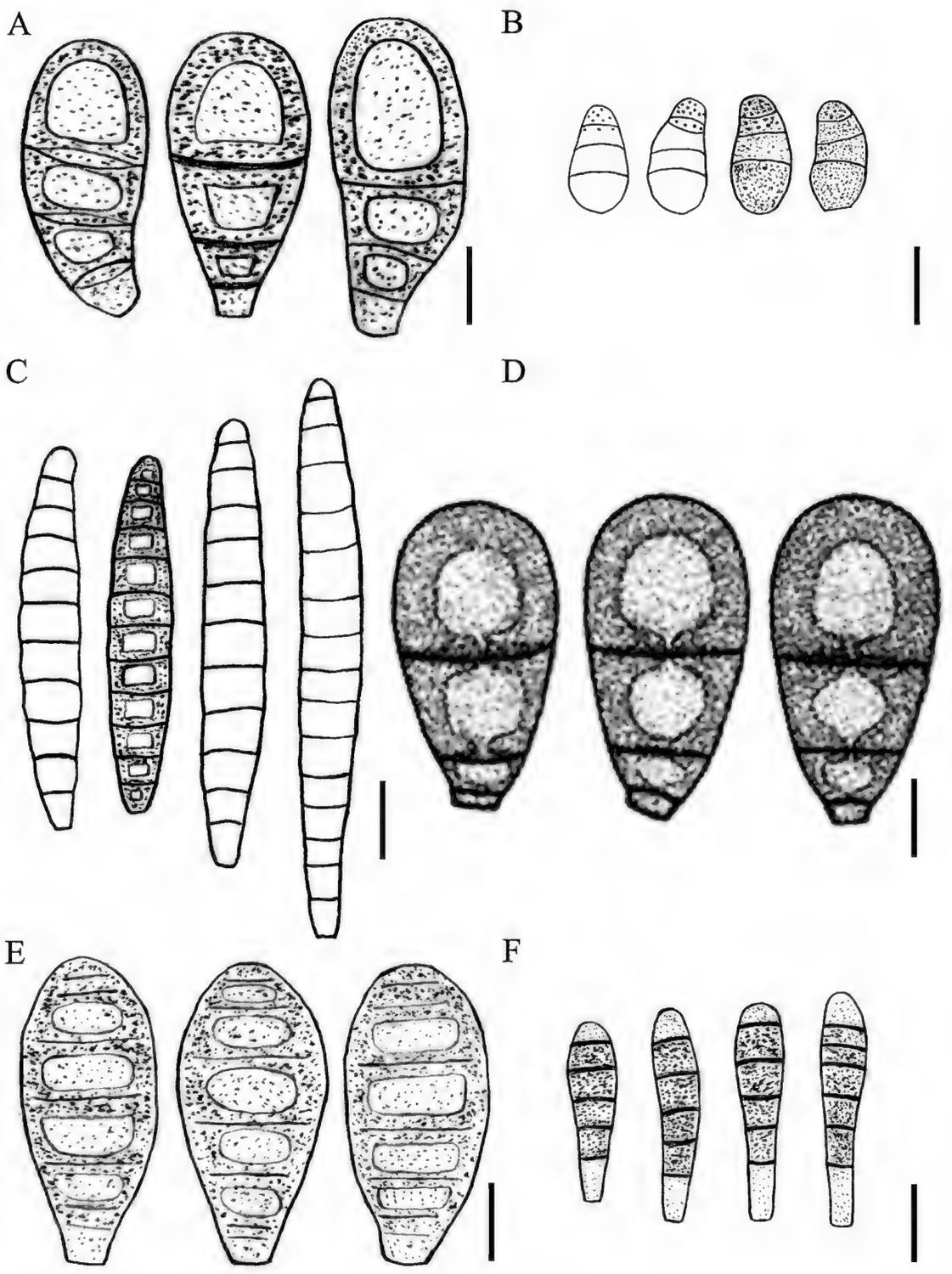

Fig. 2. *Gangliostilbe* spp.: representative conidia (re-drawn from the literature). A. ***G. indica*** (Vittal 1976); B. ***G. verrucosa*** (Bhat & Sutton 1985); C. ***G. malabarica*** (Subramanian & Bhat 1989); D. ***G. costaricensis*** (Mercado-Sierra & al. 1997); E. ***G. yunnanensis*** (Ma & al. 2014); F. ***G. wuzhishanensis*** (this work). Scale bars = 10 μm.

Ma & al. 2014); *G. costaricensis* produces broadly obovoid conidia (Mercado-Sierra & al. 1997); *G. malabarica* produces elongated fusiform conidia (Subramanian & Bhat 1989); *G. verrucosa* produces ovoid to obclavate conidia (Bhat & Sutton 1985, Ma & al. 2014). Comparisons of conidial shapes from all *Gangliostilbe* species are shown in Fig. 2.

Key to species of *Gangliostilbe*

1. Conidia obovoid to ellipsoidal 2
1. Conidia not as above 3
2. Conidia broadly obovoid, uniformly pigmented, 38–48 × 20–25 µm, 3-septate; conidiophores 5–7 µm wide ..... *G. costaricensis*
2. Conidial cells unevenly pigmented; conidiophores ≤5 µm wide 4
3. Conidia ovoid to obclavate, 12.5–16 × 4.5–7.5 µm, 2–3(–4)-septate, dark brown, apical and subapical cells pale brown and verruculose; conidiophores unbranched ..... *G. verrucosa*
3. Conidia fusiform or clavate 5
4. Conidia 26–42 × 12–15 µm, 3-septate; conidiophores 3–4.5 µm wide ..... *G. indica*
4. Conidia 30–42 × 15–20 µm, 6- or 7-septate; conidiophores 2.5–4.2 µm wide ..... *G. yunnanensis*
5. Conidia fusiform, gangliar, elongated, ≤17-septate, light brown, smooth, 27–72 × 7–10 µm; conidiophores branched ..... *G. malabarica*
5. Conidia clavate, brown, truncate at the base, basal cells pale brown, smooth, thick-walled, 3–6-euseptate, 22–30 × 5–7 µm; conidiophores unbranched ..... *G. wuzhishanensis*

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